12630-N New
to 39627

121751

HMT ASSOCIATES, L.L.C.

1850 K STREET, N.W.
SUITE 200
WASHINGTON, D.C. 20006-3500

(202) 463-3511

FACSIMILE (202) 463-3512

E.A. ALTEMOS
PATRICIA A. QUINN
GORDON ROUSSEAU

WRITER'S DIRECT DIAL NUMBER
(202) 463-3511, Ext. 11

01 DEC -5 AM 10:52

RSPA-01-8850-1

January 22, 2001

01 JAN 25 PM 1:35

Ms. J. Suzanne Hedgepeth
Director, Office of Hazardous Materials
Exemptions and Approvals (DHM-30)
Hazardous Materials Safety
Department of Transportation
Washington, D.C. 20590-0001

Re: **Application for new exemption.**

Dear Ms. Hedgepeth:

Pursuant to the provisions of 49 CFR 107.105, and on behalf of Chemetall GmbH Gesellschaft ("Chemetall"), of Langelsheim, Germany, this is to request an exemption from the provisions of the Hazardous Materials Regulations (HMR). The requested exemption would permit the transport of lithium alkyls (UN 2445) in a DOT Specification IM 101portable tank with an equivalent minimum shell thickness less than that prescribed for this material under the applicable IM Tank Special Provision T40. The information below is submitted in accordance with § 107.105.

1. **Regulation From Which Relief Sought**. 49 CFR 172.102(a)(2) and (c)(7)(ii), in that lithium alkyls (UN 2445) would be authorized for transport in a DOT Specification IM 101 portable tank with an equivalent (as compared to the reference mild steel) minimum shell thickness less than that prescribed in IM Tank Special Provision T40, which is indicated in column (7) of the Hazardous Materials Table entry for lithium alkyls.

2. **Applicant**. HMT Associates, L.L.C., on behalf of Chemetall GmbH, Innerstetal 2, 38685 Langelsheim, Germany. US Agent for applicant is Chemetall Foote Corp., 348 Holiday Inn Drive, Kings Mountain, North Carolina 28086; contact: Mr. Ted Johnson, telephone: (704) 734-2735. Please address any questions concerning this application to the undersigned at the address and telephone number indicated in the letter head.

3. **Description of Proposal**. An exemption is requested to authorize the transport of lithium alkyls (UN 2445) in certain DOT Specification IM 101 portable tanks conforming to all applicable requirements of the Hazardous Materials Regulations (HMR) except that the equivalent (as compared to the reference mild steel) minimum shell thickness is less than that prescribed in IM Tank Special Provision T40, which is indicated in column (7) of the Hazardous Materials Table entry for lithium alkyls. To provide for an equivalent level of safety in transport under the requested exemption, the applicant proposes that the DOT Specification IM portable tanks prescribed be required to conform the following specific construction characteristics:

1)	Material of Construction:	T/EStE 355 (DIN 17102)
2)	Maximum shell diameter:	2.180 m
3)	Minimum thickness (actual):	Shell: 10.0 mm Heads: 11.4 mm
4)	Equivalent[1/] minimum thickness:	10.9 mm, as calculated in accordance with § 178.270-5(d) by using actual values for tensile strength and percent elongation as determined by tests on specimens from the group of plates used in the fabrication of the tanks.

[1/] As compared to the reference mild steel described in § 178.270-5(a) of the HMR.

5) Additional protection: Shells are fitted with overall external structural protection consisting of a stainless steel jacket with a minimum thickness of 0.8 mm secured to the shell, with a 100 mm thick layer of polyurethane insulation installed between the jacket and the shell, and the shell and its external structural protection fully enclosed in a complete framework conforming to CSC requirements.

4. **Hazardous Material to be Transported**. It is requested that the following hazardous material be authorized for transport under the terms of the exemption:

Hazardous materials description -- proper shipping name	**Hazard Class/ Division**	**Identi-fication number**	**Packing Group**
Lithium alkyls	4.2	UN 2445	I

5. **Shipping Experience**. The portable tanks proposed are authorized, and have been used extensively for the transport of lithium alkyls by highway and rail in Europe. In addition, the portable tanks conform fully to the IMDG Code (1990 Consolidated Edition, as amended through Amendment 29 (1998)) requirements applicable to the transport of lithium alkyls, and have been used extensively in the sea transport of this material throughout the world. In the use of the portable tanks concerned for a period of over 18 years for the road, rail and sea transport of lithium alkyls, no incidents or accidents have been experienced.

6. **Transport Modes**. Authorization is sought for transportation by motor vehicle, rail freight and cargo vessel. No modal-specific safety control measures are considered necessary.

7. **Duration of Exemption**. It is requested that this exemption be issued for a renewable, two year period.

8. **Justification for Exemption and Level of Safety**. Chemetall submits, for the reasons offered below, that the exemption requested herein is justified in that use of the DOT Specification IM 101 portable tank conforming to the specific requirements proposed above will achieve a level of safety in transport at least equivalent to that afforded by a DOT Specification IM 101 portable tank conforming to the regulation from which exemption is sought.

IM Tank Special Provision T40, which is applicable to IM 101 portable tanks used for the transport of lithium alkyls, requires that each tank have a minimum shell thickness of 10 mm, based on the reference mild steel with mechanical properties as defined in § 178.270-5(a). Moreover, for a portable tank made of other than the reference mild steel, and with a diameter greater than 1.8 m, the required equivalent minimum thickness (i.e., the minimum wall thickness which corresponds to the minimum thickness required for a tank constructed of the reference mild steel) of the tank must be calculated in accordance with § 178.270-5(d) of the HMR.

The material of construction used in the tanks proposed for authorization (i.e., T/ESTE 355, as specified in the German standard DIN 17102) has a *guaranteed* minimum tensile strength (R_m) of 49 dN/mm^2 and a *guaranteed* minimum elongation (A) of 22%. Based on these values, and the actual diameter of the tank, the required equivalent minimum thickness (i.e., the thickness equivalent to the required 10 mm of reference mild steel) for the tank, calculated in accordance with § 178.270-5(d), is approximately 11.8 mm. However, when the same calculation is performed using the *actual* values for tensile strength and percent elongation exhibited by the material of construction (as determined by tests on specimens from the group of plates used in the fabrication of the tanks in accordance with the provisions of the "Note" appearing at the end of § 178.270-5), the required equivalent minimum thickness of the tank is between 10.2 and 10.9 mm. Based on the greater of these required equivalent minimum thickness values (i.e., 10.9 mm), and given the actual 10 mm

minimum thickness of the cylindrical portion[2/] of the tanks concerned, the actual thickness of the tank would never be more than 0.9 mm *below* (i.e., "thinner" than) the required equivalent minimum thickness.

It is well known that the intended purpose of the increased minimum thickness prescribed in IM Tank Special Provision T40 is to provide increased resistance to puncture or other mechanical damage to IM portable tanks transporting the relatively high hazard materials to which that special provision is assigned in column (7) of the Hazardous Materials Table. In this connection, the applicant submits that the additional protection proposed above of a stainless steel jacketed insulation system, and full inclusion of the body of the tank within a container frame, is sufficient to ensure that the portable tanks for which exemption is requested will provide equivalent safety in transport (from the point of view of resistance to puncture and mechanical damage) to that provided by a "bare", 10 mm thick IM portable tank fabricated of the reference mild steel, as authorized by the HMR for the transport of lithium alkyls. Indeed, taking account of the increased tensile strength and minimum elongation of virtually any stainless steel as compared to the corresponding values for the reference mild steel[3/], the "equivalent" thickness of the stainless steel jacket itself is considered to more than compensate for the 0.9 mm thickness "shortfall" of the cylindrical portion of the tank shell. The 100 mm thickness of polyurethane insulation "sandwiched" between the tank shell and the jacket, provides a further increase in resistance to puncture of or mechanical damage to the shell of the tank. Finally, the full enclosure of the shell and its external structural protection within a complete framework conforming to CSC requirements, provides further protection against puncture and mechanical damage as compared to a "bare", skid-mounted,

---

[2/] Note that the 11.4 mm actual head thickness exceeds the 10.9 mm required equivalent minimum thickness.

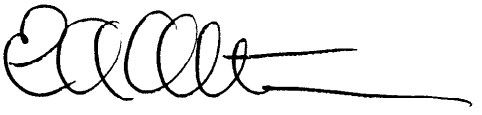
[3/] The tensile strength of common stainless steels is typically within the range of 45 to 52 dN/mm^2 as compared to 37 dN/mm^2 for the reference mild steel, and elongation typically in the range of 35 to 40 percent, as compared to the 27 percent minimum for the reference mild steel.

reference mild steel IM portable tank meeting the minimum requirements of the HMR for the transport of lithium alkyls.[4/]

In summary, for the reasons outlined above the applicant believes that the DOT Specification IM 101 portable tank proposed for authorization under the requested exemption will afford a level of safety in transport equivalent to that afforded by a DOT Specification IM 101 portable tank meeting the minimum requirements of the regulation from which exemption is sought. Therefore, the applicant respectfully requests that the exemption sought be issued at the earliest possible time.

Please contact the undersigned directly if you have questions concerning this request, or require any additional information in order to process this application.

Sincerely,



E. A. Altemos

[4/] It is noted that both the jacketed insulation form of external structural protection, and the use of a protective framework, are systems recognized as affording increased puncture protection of tanks for purposes of approving reductions in the "normal" minimum thicknesses required for DOT Specification IM 102 portable tanks (see § 178.272-2(c)).